Application serial no.: 10/091,361   Filed: March 4, 2002
Inventor: Merrill et al.   Title: Method for Storing and Retrieving Data From An Imaging......
Docket No.:   FOV-029COA   Attorney: William P. Wilbar
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G	R	G	R
B	G	B	G
G	R	G	R
B	G	B	G

FIG. 1
PRIOR ART

Green domain

Horizontal
Spatial frequency

Red/Blue
domain

Vertical
Spatial frequency

FIG. 2
PRIOR ART

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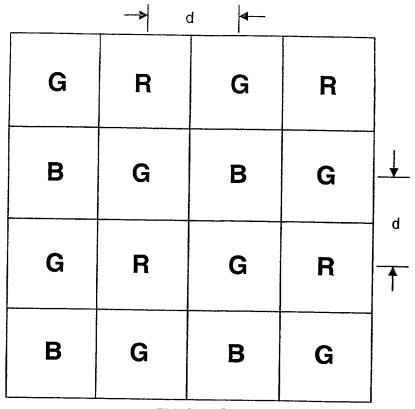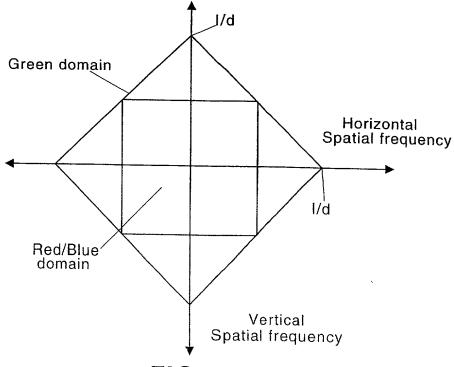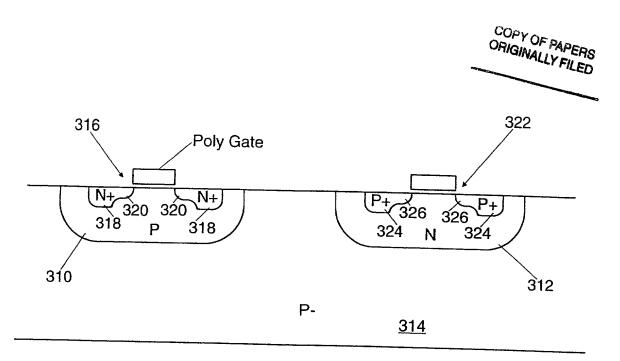Title: Method for Storing and Retrieving Data From An Imaging......
Attorney: William P. Wilbar
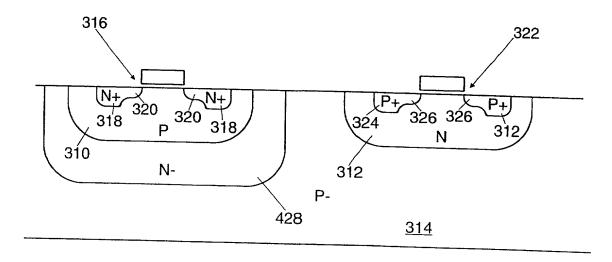Sierra Patent Group, Ltd.

FIG. 3
PRIOR ART

FIG. 4
PRIOR ART

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Inventor: Merrill et al.
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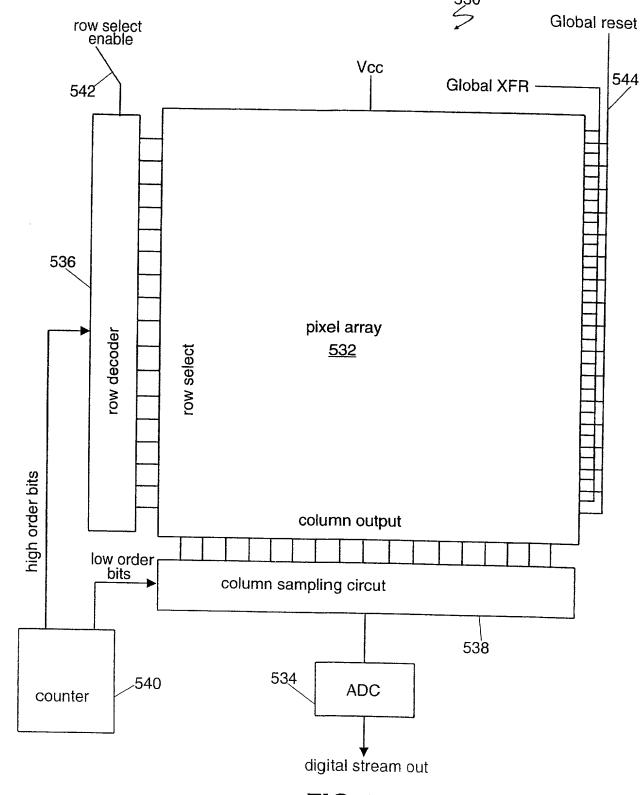Title: Method for Storing and Retrieving Data From An Imaging......
Attorney: William P. Wilbar
Sierra Patent Group, Ltd.

530

row select
enable

542

536

high order bits

Vcc

Global XFR

Global reset

544

row decoder

row select

pixel array
532

column output

low order
bits

column sampling circut

538

counter

540

534

ADC

digital stream out

FIG. 5

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Docket No.: FOV-029COA   Attorney: William P. Wilbar
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650

Vref

654

RESET

XFR

656   662

Vcc

660

COLUMN
OUTPUT

652

658

664

ROW SELECT

FIG. 6

RESET ————— 766 770   776

772
INTEGRATION

768

XFR

774

ROW I SELECT

ROW N SELECT

FIG. 7

Application serial no.: 10/091,361
Inventor: Merrill et al.
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Title: Method for Storing and Retrieving Data From An Imaging......
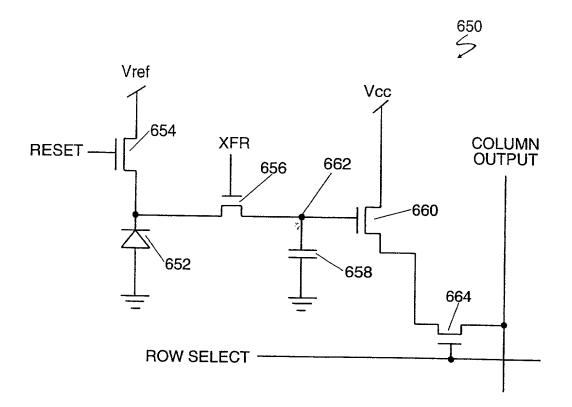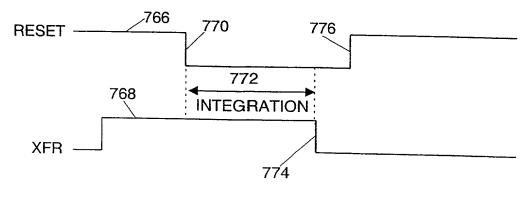Attorney: William P. Wilbar
Sierra Patent Group, Ltd.

FIG. 8
PRIOR ART

Application serial no.: 10/091,361
Inventor: Merrill et al.
Docket No.: FOV-029COA
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Filed: March 4, 2002
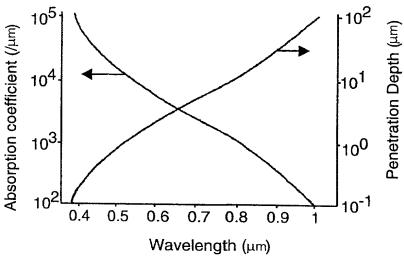Title: Method for Storing and Retrieving Data From An Imaging......
Attorney: William P. Wilbar
Sierra Patent Group, Ltd.

FIG. 9

Application serial no.: 10/091,361
Inventor: Merrill et al.
Docket No.: FOV-029COA
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Filed: March 4, 2002
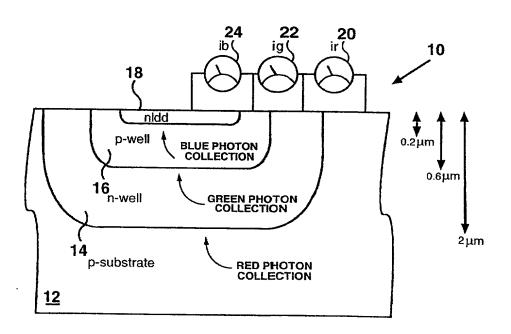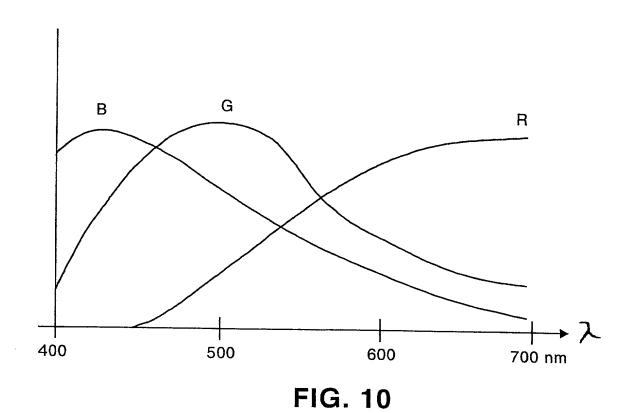Title: Method for Storing and Retrieving Data From An Imaging......
Attorney: William P. Wilbar
Sierra Patent Group, Ltd.

FIG. 10

Application serial no.: 10/091,361   Filed: March 4, 2002
Inventor: Merrill et al.   Title: Method for Storing and Retrieving Data From An Imaging......
Docket No.:   FOV-029COA   Attorney: William P. Wilbar
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PIX-VCC

RESET

54b

54g

54r

56b

56g

56r

ROW-SELECT

58b

58g

58r

BLUE OUT

GREEN OUT

RED OUT

light
shield

42	n
40	p
38	n
36	p
34	n
32	p

30

FIG. 11A

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Attorney: William P. Wilbar
Sierra Patent Group, Ltd.

FIG. 11B

Application serial no.: 10/091,361
Inventor: Merrill et al.
Docket No.: FOV-029COA
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Filed: March 4, 2002
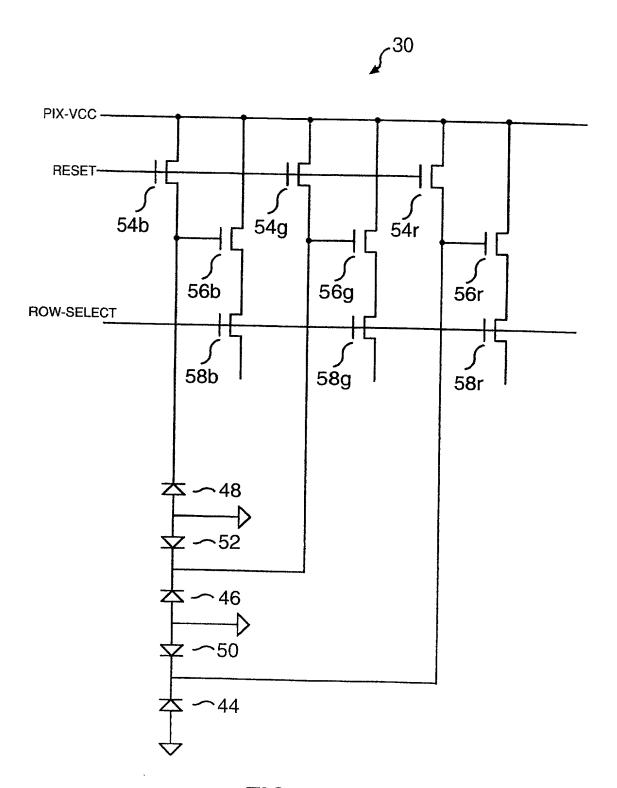Title: Method for Storing and Retrieving Data From An Imaging......
Attorney: William P. Wilbar
Sierra Patent Group, Ltd.

FIG. 11C

Application serial no.:   10/091,361
Inventor: Merrill et al.
Docket No.:   FOV-029COA
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Filed: March 4, 2002
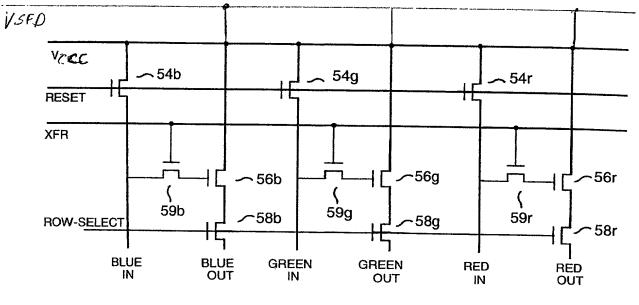Title: Method for Storing and Retrieving Data From An Imaging......
Attorney: William P. Wilbar
Sierra Patent Group, Ltd.

Epi-2   72

Epi-1   66

SUBSTRATE   60

FIG. 12

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Inventor: Merrill et al.
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Filed: March 4, 2002
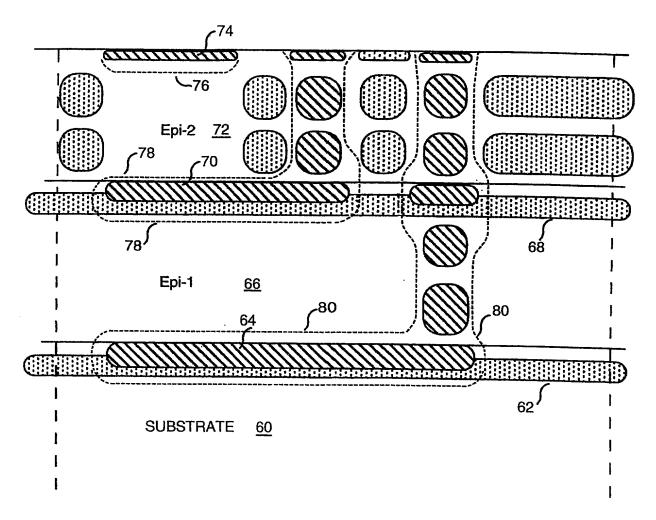Title: Method for Storing and Retrieving Data From An Imaging......
Attorney: William P. Wilbar
Sierra Patent Group, Ltd.

94

92

SUBSTRATE 90

FIG. 13A

Application serial no.: 10/091,361
Inventor: Merrill et al.
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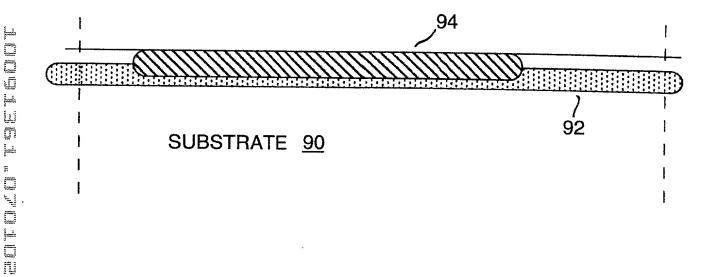Title: Method for Storing and Retrieving Data From An Imaging......
Attorney: William P. Wilbar
Sierra Patent Group, Ltd.

Epi-1   <u>96</u>

~100

~98

94

SUBSTRATE <u>90</u>

92

FIG. 13B

Application serial no.: 10/091,361
Inventor: Merrill et al.
Docket No.: FOV-029COA
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Filed: March 4, 2002
Title: Method for Storing and Retrieving Data From An Imaging......
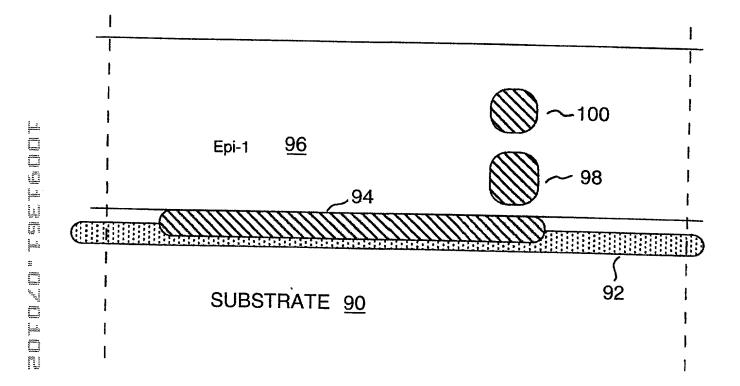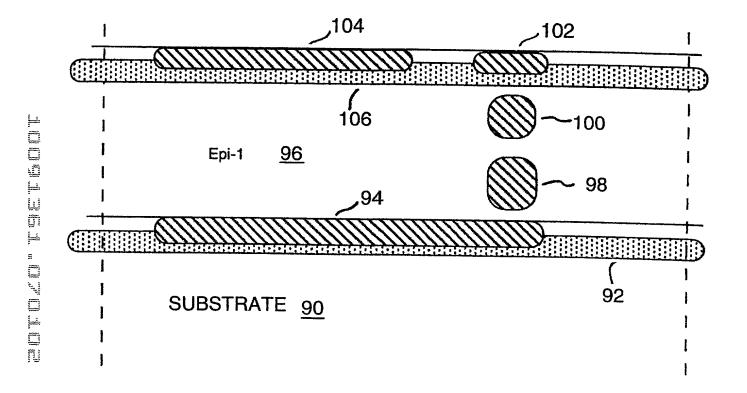Attorney: William P. Wilbar
Sierra Patent Group, Ltd.

FIG. 13C

Application serial no.: 10/091,361
Inventor: Merrill et al.
Docket No.. FOV-029COA
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Filed: March 4, 2002
Title: Method for Storing and Retrieving Data From An Imaging......
Attorney: William P. Wilbar
Sierra Patent Group, Ltd.

Epi-2 **108**

Epi-1 **96**

110

112

104

102

106

100

98

94

SUBSTRATE **90**

92

FIG. 13D

Application serial no.: 10/091,361
Inventor: Merrill et al.
Docket No.: FOV-029COA
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Filed: March 4, 2002
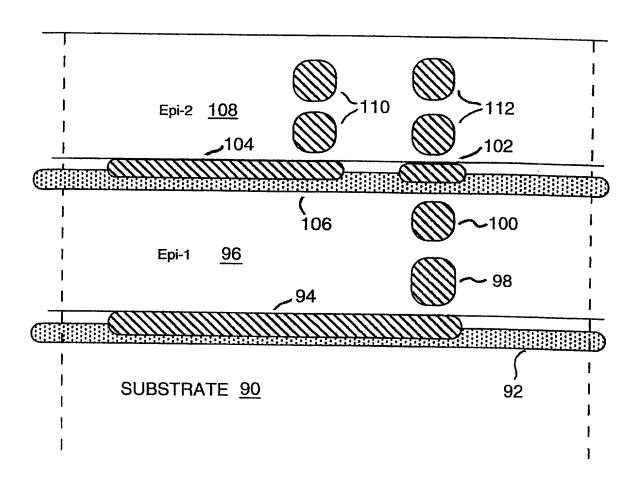Title: Method for Storing and Retrieving Data From An Imaging......
Attorney: William P. Wilbar
Sierra Patent Group, Ltd.

FIG. 13E

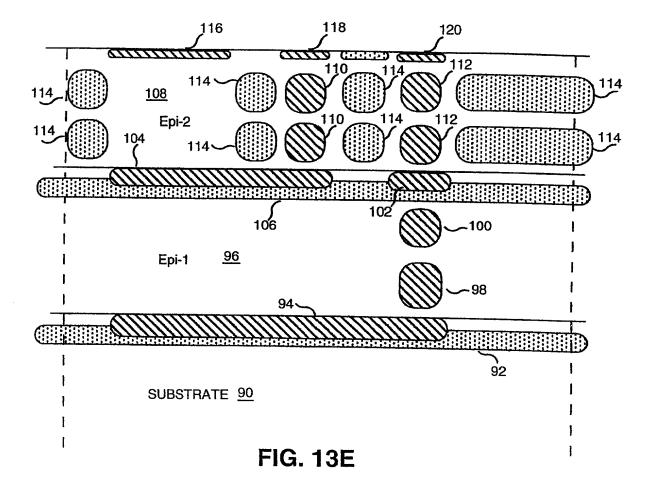Application serial no.: 10/091,361
Inventor: Merrill et al.
Docket No.: FOV-029COA
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Filed: March 4, 2002
Title: Method for Storing and Retrieving Data From An Imaging......
Attorney: William P. Wilbar
Sierra Patent Group, Ltd.

FIG. 14

Application serial no.: 10/091,361   Filed: March 4, 2002
Inventor: Merrill et al.   Title: Method for Storing and Retrieving Data From An Imaging......
Docket No.: FOV-029COA   Attorney: William P. Wilbar
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EXPOSURE

PIX-VCC

RESET

XFR

ROW-SELECT

VSFD

FIG. 15A

PIX-VCC

EXPOSURE

RESET

SHUTTER

ROW-SELECT

VSFD

FIG. 15B

Application serial no.: 10/091,361
Inventor: Merrill et al.
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Filed: March 4, 2002
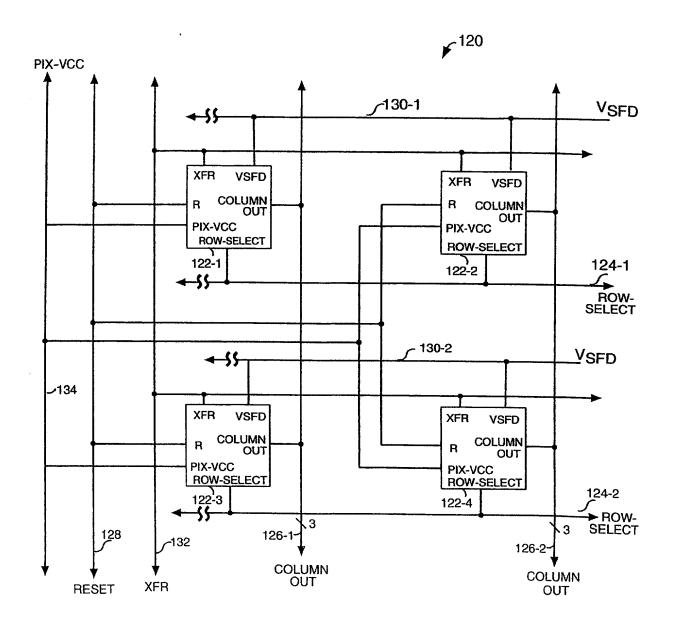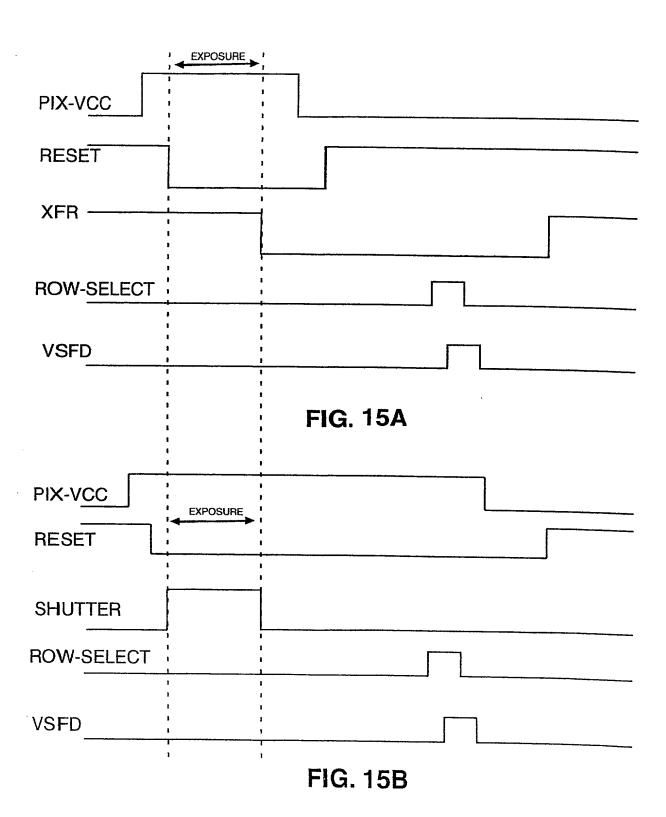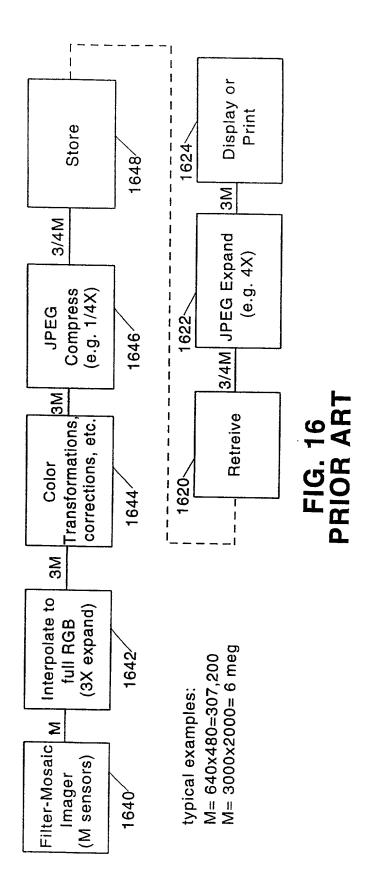Title: Method for Storing and Retrieving Data From An Imaging......
Attorney: William P. Wilbar
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FIG. 16
PRIOR ART

Application serial no.: 10/091,361   Filed: March 4, 2002
Inventor: Merrill et al.   Title: Method for Storing and Retrieving Data From An Imaging......
Docket No.: FOV-029COA   Attorney: William P. Wilbar
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FIG. 17A

typical examples:
M= 640x480x3=921,600
M= 1600x1250x3=6 meg
M= 3000x2000x3=18 meg
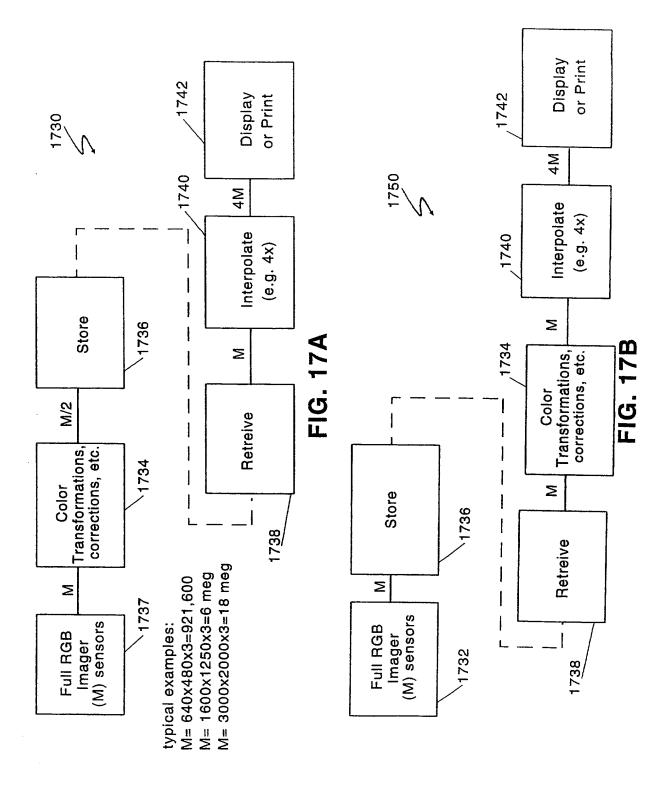
FIG. 17B

Application serial no.: 10/091,361
Inventor: Merrill et al.
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Filed: March 4, 2002
Title: Method for Storing and Retrieving Data From An Imaging......
Attorney: William P. Wilbar
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FIG. 18A

FIG. 18B